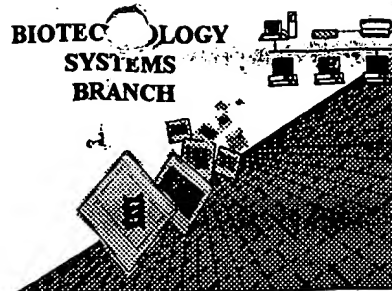


RAW SEQUENCE LISTING **ERROR REPORT**



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/508,095
Source: O/P E
Date Processed by STIC: 9/7/2001

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TECH CENTER 160012900

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,**
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY**

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:

<http://www.uspto.gov/web/offices/pac/checker>

Raw Sequence Listing Error Summary

ERROR DETECTED

SUGGESTED CORRECTION

SERIAL NUMBER: 09/508,095

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1 Wrapped Nucleics
 Wrapped Aminos
The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
- 2 Invalid Line Length
The rules require that a line not exceed 72 characters in length. This includes white spaces.
- 3 Misaligned Amino
 Numbering
The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
- 4 Non-ASCII
The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
- 5 Variable Length
Sequence(s) contain n's or Xaa's representing more than one residue. Per Sequence Rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
- 6 PatentIn 2.0
 "bug"
A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) . Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
- 7 Skipped Sequences
 (OLD RULES)
Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence:
(2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
(i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
This sequence is intentionally skipped

Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
- 8 Skipped Sequences
 (NEW RULES)
Sequence(s) missing. If intentional, please insert the following lines for each skipped sequence.
<210> sequence id number
<400> sequence id number
000
- 9 Use of n's or Xaa's
 (NEW RULES)
Use of n's and/or Xaa's have been detected in the Sequence Listing.
Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.
In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 10 Invalid <213>
 Response
Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence
- 11 Use of <220>
Sequence(s) missing the <220> "Feature" and associated numeric identifiers and responses.
Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.
(See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
- 12 PatentIn 2.0
 "bug"
Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.
- 13 Misuse of n
n can only be used to represent a single nucleotide in a nucleic acid sequence. N is not used to represent any value not specifically a nucleotide.

AMC/MH - Biotechnology Systems Branch - 08/21/2001

TECH CENTER 1600/2900

NOV 13 2001

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NOV 13 2001
TECH CENTER 1600/2600
OIPF

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/508,095

DATE: 09/07/2001
TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199
Output Set: N:\CRF3\09072001\I508095.raw

C--> 2 <140> CURRENT APPLICATION NUMBER: US/09/508,095
C--> 2 <141> CURRENT FILING DATE: 2001-08-20
W--> 2 <151> PRIOR FILING DATE: 1999-09-10
W--> 0 <110> APPLICANT:
W--> 0 <120> TITLE INVENTION:
W--> 0 <130> FILE REFERENCE:
4 <150> PRIOR APPLICATION NUMBER: 60/128,689
5 <151> PRIOR FILING DATE: 1999-04-09
7 <160> NUMBER OF SEQ ID NOS: 165
9 <170> SOFTWARE: PatentIn Ver. 2.0

Does Not Comply
Corrected Diskette Needed

<1107
<1207
<1407
<1417
<1507

These mandatory
numeric identifiers
and responses are missing
corresponding to the
indicated <1517 line

ERRORED SEQUENCES

1952 <210> SEQ ID NO: 16
1953 <211> LENGTH: 2110
1954 <212> TYPE: PRT
1955 <213> ORGANISM: Pasteurella multocida
1957 <400> SEQUENCE: 16
1958 Met Gln Pro Ala Gln Glu His Cys Gln Arg Ile Asn Asn Ile Val Asn
1959 1 5 10 15
1961 Gln Glu Asn Gly Leu Phe His Thr Leu Gly Asn Met Met Leu Glu Ala
1962 20 25 30
1964 Glu Arg Ser Val Tyr Asn Ile Gly Asp Ile Tyr Ala Ser Lys Lys Leu
1965 35 40 45
1967 Thr Val His Thr His Asn Leu Ile Asn Asp Val Arg Leu Ser Gly Asn
1968 50 55 60
1970 Val Ser Tyr Lys Pro Ile Gly Ser Ser Arg Asp Tyr Asp Ile Ser Arg
1971 65 70 75 80
1973 Val Ala Val His Gly Trp His Asn Asn Val Tyr Lys Leu Asn Leu Asn
1974 85 90 95
1976 Leu Gln Glu Gln Asp Lys Thr Asp Ile Lys Val Val Lys Met Gly Ala
1977 100 105 110
1979 Ile Arg Ser Asp Gly Asp Phe Asp Phe Lys Gly Ile Lys Ala Thr Ser
1980 115 120 125
1982 Ser Glu Ser Lys Pro Gln Leu Ile Asn His Gly Leu Ile Asn Val Lys
1983 130 135 140
1985 Gly Thr Phe Asn Ala Glu Ala Asp Gln Val Val Asn Gln Met Lys Ala
1986 145 150 155 160
1988 Phe Asn Gln Asn Ala Leu Ala Ser Val Phe Lys Asn Pro Ala Lys Ile
1989 165 170 175
1991 Thr Met Tyr Tyr Gln Pro Leu Thr Arg Tyr Ile Trp Thr Pro Leu Ser
1992 180 185 190
1994 Gly Asn Ala Ser Arg Glu Phe Asn Asn Leu Glu Ser Phe Leu Asp Ala
1995 195 200 205
1997 Leu Phe Gly Ser Thr Thr Ile Leu Lys Ser Ser Phe Tyr Ser Thr Glu
1998 210 215 220

pg 4-6

(see
item 12
on Enon
summary
sheet)

RAW SEQUENCE LISTING

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TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

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2000 Asn Phe Ser Ala Tyr Gln Leu Leu Ser His Ile Gln His Ser Pro Met
2001 225                230                235                240
2003 Tyr Gln Lys Ala Met Ala Gln Val Phe Gly Ala Glu Trp His Ser Lys
2004                245                250                255
2006 Ser Tyr Asp Glu Met Arg Asn Lys Trp Lys Ser Phe Lys Glu Asn Pro
2007                260                265                270
2009 Thr Asp Phe Ile Tyr Tyr Pro Ser Glu Lys Ala Lys Ile Leu Ala Gly
2010                275                280                285
2012 Lys Leu Glu Gly Lys Leu Thr Thr Leu Gln Asn Gly Glu Tyr Ala Glu
2013                290                295                300
2015 Arg Gly Lys Phe Asp Glu Ser Ile Gln Ile Gly Lys His Gln Leu Ser
2016 305                310                315                320
2018 Leu Pro Ser Val Glu Leu Lys Ala Glu Phe Ser Asp Lys Glu Arg Leu
2019                325                330                335
2021 Glu Glu Asp Gly Val Asp Leu Ser Ser Ile Ala Glu Leu Leu Glu Met
2022                340                345                350
2024 Pro Asn Leu Phe Ile Asp Asn Ser Ile Gln Leu Glu Lys Lys Lys Leu
2025                355                360                365
2027 Ser Pro Ile Glu Asp Leu Asp Glu Glu Pro Arg Lys Asn Leu Asp Ile
2028                370                375                380
2030 Glu Glu Ser His Ser Asn Ser Ser Asp Asp Val Leu Ser Met Asn Asp
2031 385                390                395                400
2033 Asp Glu Ser Asp Thr Asp Asp Ser Lys Trp Ser Met Gly Asn Asp Glu
2034                405                410                415
2036 Lys Glu Met Pro Asp Asp Lys Leu Gly Ile Ser Arg Asp Asp Arg Gly
2037                420                425                430
2039 Asn Lys Pro Pro Arg Thr Asp Pro Thr Val Asp Tyr Leu Asn Pro Asp
2040                435                440                445
2042 Glu Phe Phe Glu Asn Gly Tyr Leu Leu Asn Glu Leu Leu Gln Glu Leu
2043                450                455                460
2045 Gly Glu Glu Pro Leu Leu Lys Glu Gly Glu Asp His Phe Lys Arg Ser
2046 465                470                475                480
2048 Thr Asn Leu Val Arg Leu Gly Glu Arg Asp Arg Gln Asn Arg Glu Lys
2049                485                490                495
2051 Arg Glu Lys Glu Gly Tyr Phe Asp Leu Pro Gly Thr Leu Asp Met Lys
2052                500                505                510
2054 Leu Gln Glu Leu Phe Glu Lys Arg Lys Gln Lys His Glu Ala Glu Gln
2055                515                520                525
2057 Lys Ala Arg Ile Glu Lys Ala Leu Leu Gln Lys Ser Glu Gln Gln Glu
2058                530                535                540
2060 Lys Arg Val Glu Glu Arg Lys Gln Glu Glu Lys Arg Gln Ala Gln Asp
2061 545                550                555                560
2063 Lys Ile Ala Lys Gln Val Glu Ile Ala Lys Glu Met Gln Arg Val Glu
2064                565                570                575
2066 Glu Ile Arg Gln Arg Glu Lys Gln Leu Ala Ile Gln Leu Gln Glu Glu
2067                580                585                590
2069 Glu Lys Lys Gln Gln Glu Glu Lys His Leu Ser Glu Glu Lys Lys Gln
2070                595                600                605
2072 Ala Glu Gln Lys Gln Lys Ala Glu Glu Lys Val Ala Gln Glu Arg Leu

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RAW SEQUENCE LISTING

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TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

2073	610		615		620											
2075	Asp	Ile	Glu	Gln	Gln	Lys	Ala	Tyr	Glu	Glu	Met	Ala	Lys	Arg	Glu	Ala
2076	625					630					635				640	
2078	Glu	Ala	Ser	Lys	Asn	Val	Leu	Leu	Lys	Ala	Ile	Asp	Glu	Glu	Arg	Pro
2079					645					650					655	
2081	Lys	Val	Glu	Thr	Asp	Pro	Leu	Phe	Arg	Thr	Lys	Leu	Lys	Tyr	Ile	Asn
2082				660					665					670		
2084	Gln	Asp	Asp	Tyr	Ala	Gly	Ala	Asn	Tyr	Phe	Phe	Asn	Lys	Val	Gly	Leu
2085			675					680					685			
2087	Asn	Thr	Lys	Gly	His	Gln	Lys	Val	Asn	Val	Leu	Gly	Asp	Asn	Tyr	Phe
2088		690				695					700					
2090	Asp	His	Gln	Val	Ile	Thr	Arg	Ser	Ile	Glu	Lys	Lys	Val	Asp	Asn	His
2091	705					710					715				720	
2093	Leu	Asn	Gln	Lys	Tyr	Asn	Leu	Ser	Asp	Val	Glu	Leu	Val	Lys	Gln	Leu
2094					725					730				735		
2096	Met	Asp	Asn	Ser	Thr	Thr	Gln	Ala	Gln	Glu	Leu	Asp	Leu	Lys	Leu	Gly
2097				740					745				750			
2099	Ala	Ala	Leu	Thr	Lys	Glu	Gln	Gln	Ala	Asn	Leu	Thr	Gln	Asp	Ile	Val
2100			755				760				765					
2102	Trp	Tyr	Val	Lys	Thr	Lys	Val	Lys	Gly	Lys	Asp	Val	Phe	Val	Pro	Lys
2103		770				775					780					
2105	Val	Tyr	Phe	Ala	Ser	Glu	Thr	Leu	Val	Glu	Ala	Gln	Lys	Leu	Gln	Gly
2106	785					790				795					800	
2108	Leu	Gly	Thr	Gly	Thr	Ile	Arg	Val	Gly	Glu	Ala	Lys	Ile	Lys	Ala	Lys
2109				805					810					815		
2111	Asp	Val	Val	Asn	Thr	Gly	Thr	Leu	Ala	Gly	Arg	Lys	Leu	Asn	Val	Glu
2112			820					825					830			
2114	Ala	Ser	Asn	Lys	Ile	Lys	Asn	Gln	Gly	Ser	Ile	Leu	Ser	Thr	Gln	Glu
2115		835				840					845					
2117	Thr	Arg	Leu	Val	Gly	Arg	Lys	Gly	Ile	Glu	Asn	Val	Ser	Arg	Ser	Phe
2118		850				855					860					
2120	Ala	Asn	Asp	Glu	Leu	Gly	Val	Thr	Ala	Gln	Arg	Ser	Glu	Ile	Lys	Thr
2121	865				870				875						880	
2123	Glu	Gly	His	Leu	His	Leu	Glu	Thr	Asp	Lys	Asp	Ser	Thr	Ile	Asp	Val
2124				885					890					895		
2126	Gln	Ala	Ser	Asp	Ile	Lys	Ala	Lys	Thr	Ser	Phe	Val	Lys	Thr	Gly	Asp
2127			900					905					910			
2129	Val	Asn	Leu	Lys	Asn	Thr	Tyr	Asn	Thr	Lys	His	Ala	Tyr	Arg	Glu	Lys
2130		915				920					925					
2132	Phe	Ser	Pro	Ser	Ala	Leu	Gln	Val	Ala	Glu	Leu	Asp	Val	Ala	Gly	Leu
2133		930				935					940					
2135	Lys	Val	Pro	Leu	Leu	Gly	Val	Ser	Ser	Pro	Ser	Ser	Tyr	Ser	Glu	His
2136	945				950				955						960	
2138	Thr	Ser	Glu	Ala	Thr	Ser	Glu	Gly	Ser	Ile	Phe	Glu	Val	Gly	His	Leu
2139				965				970						975		
2141	His	Leu	Ala	Val	Asp	Arg	Asp	Val	Asn	Gln	Ala	Gly	Ser	Lys	Ile	Lys
2142			980					985					990			
2144	Ala	Lys	Tyr	Thr	Thr	Gly	Val	Val	Lys	Gly	Asn	Phe	Asn	Thr	Glu	Ala
2145			995			1000					1005					

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

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2147 Gly Lys Asn Ile Lys His Val Glu Lys Glu Glu Tyr Ser Ser Gln Leu
2148      1010                      1015                      1020
2150 Phe Ala Ser Ala His Ala Ser Gly Gly Gly Thr Ser Val Arg Tyr Asp
E--> 2151 (025) / 1025                      1030                      1035                      1040
2153 Tyr Asn Ser Gln Asp Gly Gly Asn Ala Ser Val Gly Val Pro Thr Asn
2154      1045                      1050                      1055
2156 His Thr Gly Val Gly Ala Glu Ala Gly Met Ser Phe Thr His Thr Lys
2157      1060                      1065                      1070
2159 Asp Lys Glu Thr Leu Leu Thr His Thr Asn Ser Glu Leu Gln Val Lys
2160      1075                      1080                      1085
2162 His Gly Lys Leu His Val Leu Gly Tyr Ala Asp Ile Gly Gly Val Asp
2163      1090                      1095                      1100
2165 Ile Asn Thr Lys Leu Pro Glu Asp Ala Gln Ser Lys Ala Gln Lys Glu
E--> 2166 (105) / 1105                      1110                      1115                      1120
2168 Ile Ala Ala Ser Lys Pro Glu Lys Thr Glu Gln Ser Ala Gln Asp Val
2169      1125                      1130                      1135
2171 Ala Gln Ala Gln Ser Asn Ala Asn Lys Asp Lys Glu Asn Lys Ala Pro
2172      1140                      1145                      1150
2174 Glu Ile Lys Glu Leu Ser Glu Ala Glu Ile Ala Asp Leu Met Ser Glu
2175      1155                      1160                      1165
2177 Lys Ser Lys Ala Tyr Phe Asp Asp Phe Ala Glu Gln Ala Lys Lys Ala
2178      1170                      1175                      1180
2180 Pro Glu Asn Asn Arg Phe Glu Leu Ser Ala Lys Glu Ile Lys Ser Ser
E--> 2181 (185) / 1185                      1190                      1195                      1200
2183 Lys Gln Lys Asp Gln Tyr Asp His Glu Ser Glu Arg Thr Thr Phe Lys
2184      1205                      1210                      1215
2186 Val Gly Pro Glu Ala Glu Ala His Ser Ala Val Ala Asp Met Val Ser
2187      1220                      1225                      1230
2189 His Leu Val Lys Glu Tyr Arg Asp Ala Gln Asn Gly Thr Lys Gln Asp
2190      1235                      1240                      1245
2192 Gly Thr Val Ala Leu Gln His Ala Ser Asp Val Leu Asn Ile Val Thr
2193      1250                      1255                      1260
2195 Gly Asp Leu Ala Gly Ser Ser Ala Lys Leu Ser Val Glu Arg Thr His
E--> 2196 (265) / 1265                      1270                      1275                      1280
2198 Glu Thr Lys Arg Thr Thr Glu Thr Gly Asp Ile Val Thr Lys Ile Gly
2199      1285                      1290                      1295
2201 Gly Asn Val Thr Leu Ser Ala Arg Ser Gly Ser Val Asn Leu Lys Asn
2202      1300                      1305                      1310
2204 Val Gln Ser Asp Glu Gln Ala Asn Leu Thr Leu Arg Ala Lys Glu Asp
2205      1315                      1320                      1325
2207 Val Asn Val Leu Ser Gly Glu Lys Thr Arg Glu Thr Thr Glu Thr Val
2208      1330                      1335                      1340
2210 Ser Arg Gln Lys Leu Ser His Gly Val Asn Ala Gly Cys Ser Met Met
E--> 2211 (345) / 1345                      1350                      1355                      1360
2213 Ser Gly Ala Cys Thr Ala Gly Val Ser Thr Ser Leu Glu Gly Asn Glu
2214      1365                      1370                      1375
2216 Ser Tyr Thr Ser Glu Arg Glu Thr Ala Gln Asn Asn Ser Phe Leu Lys
2217      1380                      1385                      1390
2219 Ala Arg Asn Met Lys Val Glu Ala Gly Arg Asp Phe Asn Val Val Ser

```

When
numbering
first amino
acid on a line,
begin number
under first
letter of amino
acid

e.g. Phe
1025

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:53

Input Set : C:\Crif3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

2220 1395 1400 1405
 2222 Ser Asn Ile Asp Ala Asp Lys Leu Asp Leu His Val Lys Gly Lys Thr
 2223 1410 1415 1420
 2225 Asn Val Val Ser Lys Gln Asp Thr Leu Gln Lys Val Thr His Gly Val
 E--> 2226 425 1430 1435 1440
 2228 Asp Tyr Asn Leu Ser Ala Gly Val Ala Leu Ser Ser Ala Thr Ile Ala
 2229 1445 1450 1455
 2231 Thr Pro Thr Gly Asn Val Gly Phe Gly Tyr Thr Asn Glu Thr Glu Ser
 2232 1460 1465 1470
 2234 Lys Arg Thr Val Asn Gln Gln Ala Gly Ile Lys Ala Asn Lys Ile Thr
 2235 1475 1480 1485
 2237 Gly Gln Thr His Asp Leu Asn Leu Glu Gly Gly Tyr Leu Val Ser Asn
 2238 1490 1495 1500
 2240 Asp Lys Asp Asn Gln Leu Lys Val Thr Gly Asp Val Thr Thr Lys Ala
 E--> 2241 505 1510 1515 1520
 2243 Leu His Asp Gln His Asp Lys Asp Gly Gly Thr Phe Gly Leu Ser Val
 2244 1525 1530 1535
 2246 Gly Ile Ser Glu Arg Gly Thr Thr Ala Phe Asn Val Arg Gly Gly Arg
 2247 1540 1545 1550
 2249 Ala Glu Gln Lys His Tyr Asn Ala Thr Gln Lys Ser Thr Leu Ser Gly
 2250 1555 1560 1565
 2252 Val Asp Thr Ser Gln Ala Asn Val Ser Gly Gln Val Asn Thr Asp Leu
 2253 1570 1575 1580
 2255 Thr Lys Ala Lys Ala Val Thr Arg Asp Asp Thr Tyr Ala Ser Thr Gln
 E--> 2256 585 1590 1595 1600
 2258 Phe Ser Phe Glu Val Ala Asp Ile Val Glu Leu Gly Gln Arg Ala Lys
 2259 1605 1610 1615
 2261 Asn Lys Leu Ser Ala Pro Asn Asn Asp Thr Asp Met Ala Ser Gly Ser
 2262 1620 1625 1630
 2264 Thr Leu Arg Ser Arg Ser Thr Thr Glu Glu Ala Asp Val Pro Thr Thr
 2265 1635 1640 1645
 2267 Arg Ser Arg Val Thr Asp Glu Ala Asp Ser Val Ser Val Lys Asn Pro
 2268 1650 1655 1660
 2270 Ile Tyr Glu Ser Ala Asp Ala Val Val Pro Thr Pro Arg Ser Arg Asn
 E--> 2271 665 1670 1675 1680
 2273 Val Asp Ser Thr Asp Leu Val Asp Asn Pro Leu Tyr Ala Ser Ala Thr
 2274 1685 1690 1695
 2276 Thr Lys Ala Asn Ile His Asp Tyr Glu Glu Ile Pro Ala Val Tyr Ser
 2277 1700 1705 1710
 2279 Lys Val Gly Asp Asn Asn Ala Asp Leu Val Arg His Lys Thr Ala Thr
 2280 1715 1720 1725
 2282 Ser Asp Glu His Leu Tyr Ala Glu Ile Asn Glu Pro Thr Tyr Ser Arg
 2283 1730 1735 1740
 2285 Val Gly Asp Lys Asn Ala Asp Met Arg Arg His Asn Ala Ala Gly Thr
 E--> 2286 745 1750 1755 1760
 2288 Thr Asp Tyr Ala Asp Val Val Gln Ala His Thr Arg Lys Ala Asp Asp
 2289 1765 1770 1775
 2291 Pro Leu Pro Ala Leu Pro Asn Gln Gly Lys Ala Arg Thr Val Asn Asp
 2292 1780 1785 1790

*same
error*

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

2294 Gly Ser Glu His Ile Tyr Thr Asp Ile Ser Asp Val Gly Thr Gln Thr
 2295 1795 1800 1805
 2297 Lys Ala Ile Asp Ser Thr Tyr Ala Thr Val Gly Met Pro Lys Ala Asn
 2298 1810 1815 1820
 2300 Ala Val Asn Leu Ile Gly Gln Asn Gly Leu Gly Ser Ile Tyr His Ser
 E--> 2301 825 1830 1835 1840
 2303 Pro Asp Ser Ala Tyr Lys Thr Trp Gln Leu Leu Asp Gln Phe Ala Asn
 2304 1845 1850 1855
 2306 Lys Gly Gly Asp Ala Val Phe Leu Arg Pro Ala Thr Glu Met Lys Cys
 2307 1860 1865 1870
 2309 Ala Gly Ala Pro Leu Lys Tyr Thr Phe Ile Val Arg Asp Tyr Leu Leu
 2310 1875 1880 1885
 2312 Arg Arg His Thr Leu Asp Lys Ser Arg Leu Phe Tyr Asn Ala His Asn
 2313 1890 1895 1900
 2315 Lys Thr Leu Phe Ser Val Pro Ile Val Asp Ala Lys Val Lys Met Leu
 E--> 2316 905 1910 1915 1920
 2318 Phe Ala Glu Lys Asn Ile Gln Val Asn Tyr Asp Arg Ser Leu Thr Ala
 2319 1925 1930 1935
 2321 Ile Asp Leu Ser Lys Arg Ile Ala Thr Phe Asn Ser Pro Glu Gly Val
 2322 1940 1945 1950
 2324 Val Glu Val Pro Tyr Asp Phe Ile Asn Val Val Pro Pro Met Arg Ala
 2325 1955 1960 1965
 2327 Pro Asp Ala Val Arg Gln Ser Ala Leu Ala Trp Gln Glu Gly Lys Trp
 2328 1970 1975 1980
 2330 Ala Asn Asp Gly Trp Val Glu Val Glu Lys His Thr Leu Arg His Arg
 E--> 2331 985 1990 1995 2000
 2333 Arg Tyr Ala Asn Val Phe Ala Val Gly Asp Val Ala Gly Val Pro Lys
 2334 2005 2010 2015
 2336 Gly Lys Thr Ala Ala Ser Val Lys Trp Gln Val Pro Val Ala Val Ala
 2337 2020 2025 2030
 2339 His Leu Leu Ala Glu Leu Glu Gly Lys Pro Cys Asp Glu Ile Tyr Asn
 2340 2035 2040 2045
 2342 Gly Tyr Thr Ser Cys Pro Leu Ile Thr Gln Leu Gly Lys Gly Met Leu
 2343 2050 2055 2060
 2345 Val Glu Phe Asp Tyr Asn Asn His Leu Thr Pro Ser Phe Pro Gly Val
 E--> 2346 065 2070 2075 2080
 2348 Ile Ala Pro Leu Glu Glu Leu Trp Ala Thr Trp Ala Ile Lys Thr Leu
 2349 2085 2090 2095
 2351 Gly Leu Lys Pro Thr Tyr Leu Gly Met Leu Arg Gly Leu Ala
 2352 2100 2105 2110
 3855 <210> SEQ ID NO: 28
 3856 <211> LENGTH: 450
 3857 <212> TYPE: PRT
 3858 <213> ORGANISM: Pasteurella multocida
 3860 <400> SEQUENCE: 28
 3861 Ser Thr Lys Val Gly Tyr Asp Ile Asn Asn Thr His Arg Phe Thr Leu
 3862 1 5 10 15
 3864 Phe Leu Glu Asp Arg Arg Glu Lys Lys Leu Thr Glu Glu Lys Thr Leu
 3865 20 25 30

RAW SEQUENCE LISTING

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Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

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3867 Gly Leu Ser Asp Ala Val Arg Phe Ala Asn Asp Gln Thr Pro Tyr Leu
3868          35          40          45
3870 Arg Tyr Gly Ile Glu Tyr Arg Tyr Asn Gly Leu Ser Trp Leu Glu Thr
3871          50          55          60
3873 Val Lys Leu Phe Leu Ala Lys Gln Lys Ile Glu Gln Arg Ser Ala Leu
3874          65          70          75          80
3876 Gln Glu Phe Asp Ile Asn Asn Arg Asn Lys Leu Asp Ser Thr Met Ser
3877          85          90          95
3879 Phe Val Tyr Leu Gln Arg Gln Asn Ile Ala Arg Gly Glu Phe Ser Thr
3880          100          105          110
E--> 3882 Ser Pro Leu Tyr Trp Gly Pro Ser Arg His Arg Leu Xaa Ala Lys Phe
3883          115          120          125
E--> 3885 Glu Phe Arg Asp Xaa Phe Leu Glu Asn Met Asn Lys Xaa Phe Thr Phe
3886          130          135          140
E--> 3888 Arg Pro Trp Gln Ile Asn Xaa Phe Arg Gln Gln Gly Arg Asn Asn Tyr
3889          145          150          155          160
3891 Thr Glu Val Phe Pro Val Lys Ser Arg Glu Phe Ser Phe Ser Leu Met
3892          165          170          175
3894 Asp Asp Ile Lys Ile Gly Glu Leu Leu His Leu Gly Leu Gly Gly Arg
3895          180          185          190
3897 Trp Asp His Tyr Asn Tyr Lys Pro Leu Leu Asn Ser Gln His Asn Ile
3898          195          200          205
3900 Asn Arg Thr Gln Arg Leu Pro Tyr Pro Lys Thr Ser Ser Lys Phe Ser
3901          210          215          220
3903 Tyr Gln Leu Ser Leu Glu Tyr Gln Leu His Pro Ser His Gln Ile Ala
3904          225          230          235          240
3906 Tyr Arg Leu Ser Thr Gly Phe Arg Val Pro Arg Val Glu Asp Leu Tyr
3907          245          250          255
3909 Phe Glu Asp Arg Gly Lys Ser Ser Ser Gln Phe Leu Pro Asn Pro Asp
3910          260          265          270
3912 Leu Gln Pro Glu Thr Ala Leu Asn His Glu Ile Ser Tyr Arg Phe Gln
3913          275          280          285
3915 Asn Gln Tyr Ala His Phe Ser Val Gly Leu Phe Arg Thr Arg Tyr His
3916          290          295          300
3918 Asn Phe Ile Gln Glu Arg Glu Met Thr Cys Asp Lys Ile Pro Tyr Glu
3919          305          310          315          320
3921 Tyr Asn Arg Thr Tyr Gly Tyr Cys Thr His Asn Thr Tyr Val Met Phe
3922          325          330          335
3924 Val Asn Glu Pro Glu Ala Val Ile Lys Gly Val Glu Val Ser Gly Ala
3925          340          345          350
3927 Leu Asn Gly Ser Ala Phe Gly Leu Ser Asp Gly Leu Thr Phe Arg Leu
3928          355          360          365
3930 Lys Gly Ser Tyr Ser Lys Gly Gln Asn His Asp Gly Asp Pro Leu Lys
3931          370          375          380
3933 Ser Ile Gln Pro Trp Thr Val Val Thr Gly Ile Asp Tyr Glu Thr Glu
3934          385          390          395          400
3936 Gly Trp Ser Val Ser Leu Ser Gly Arg Tyr Ser Ala Ala Lys Lys Ala
3937          405          410          415
3939 Lys Asp Ala Ile Glu Thr Glu Tyr Thr His Asp Lys Lys Val Val Lys

```

see item 9
on Error
Summary Sheet

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

```

3940          420          425          430
3942 Gln Trp Pro His Leu Ser Pro Ser Tyr Phe Val Val Asp Phe Thr Gly
3943          435          440          445
3945 Gln Val
3946          450
5300 <210> SEQ ID NO: 36
5301 <211> LENGTH: 302
5302 <212> TYPE: PRT
5303 <213> ORGANISM: Pasteurella multocida
5305 <400> SEQUENCE: 36
5306 Met Asn Ile Leu Phe Val Ser Asp Asp Val Tyr Ala Lys His Leu Val
5307 1 5 10 15
5309 Val Ala Ile Lys Ser Ile Ile Asn His Asn Glu Lys Gly Ile Ser Phe
5310 20 25 30
5312 Tyr Ile Phe Asp Leu Gly Ile Lys Asp Glu Asn Lys Arg Asn Ile Asn
5313 35 40 45
5315 Asp Ile Val Ser Ser Tyr Gly Ser Glu Val Asn Phe Ile Ala Val Asn
5316 50 55 60
5318 Glu Lys Glu Phe Glu Ser Phe Pro Val Gln Ile Ser Tyr Ile Ser Leu
5319 65 70 75 80
5321 Ala Thr Tyr Ala Arg Leu Lys Ala Ala Glu Tyr Leu Pro Asp Asn Leu
5322 85 90 95
5324 Asn Lys Ile Ile Tyr Leu Asp Val Asp Val Leu Val Phe Asn Ser Leu
5325 100 105 110
5327 Glu Met Leu Trp Asn Val Asp Val Asn Asn Phe Leu Thr Ala Ala Cys
5328 115 120 125
5330 Tyr Asp Ser Phe Ile Glu Asn Glu Lys Ser Glu His Lys Lys Ser Ile
5331 130 135 140
5333 Ser Met Ser Asp Lys Glu Tyr Tyr Phe Asn Ala Gly Val Met Leu Phe
5334 145 150 155 160
5336 Asn Leu Asp Glu Trp Arg Lys Met Asp Val Phe Ser Arg Ala Leu Asp
5337 165 170 175
5339 Leu Leu Ala Met Tyr Pro Asn Gln Met Ile Tyr Gln Asp Gln Asp Ile
5340 180 185 190
5342 Leu Asn Ile Leu Phe Arg Asn Lys Val Cys Tyr Leu Asp Cys Arg Phe
5343 195 200 205
E--> 5345 Asn Phe Met Pro Asn Gln Leu Glu Arg Ile Xaa Gln Tyr His Lys Gly
5346 210 215 220
E--> 5348 Lys Xaa Ser Asn Leu His Ser Leu Glu Lys Thr Thr Met Pro Val Val
5349 225 230 235 240
5351 Ile Ser His Tyr Cys Gly Pro Glu Lys Ala Trp His Ala Asp Cys Lys
5352 245 250 255
E--> 5354 His Phe Asn Val Tyr Phe Tyr Gln Lys Ile Leu Ala Xaa Xaa Ser Arg
5355 260 265 270
E--> 5357 Gly Xaa Asp Lys Glu Arg Val Leu Ser Ile Lys Thr Tyr Leu Lys Ala
5358 275 280 285
5360 Leu Ile Arg Arg Ile Arg Tyr Lys Phe Lys Tyr Gln Val Tyr
5361 290 295 300
5472 <210> SEQ ID NO: 38

```

item 9

item 9

item 9

item 9

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:53

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

```

5473 <211> LENGTH: 166
5474 <212> TYPE: PRT
5475 <213> ORGANISM: Pasteurella multocida
5477 <400> SEQUENCE: 38
5478 Leu Asn Lys Ala Gly Lys Ile Gln Tyr Val Leu Leu Lys Gly Asn Gln
5479 1 5 10 15
5481 Gly His Pro Asp Ala Glu Ala Arg Thr Lys Phe Val Ile Lys Glu Leu
5482 20 25 30
E--> 5484 Xaa Asn Lys Gly Ile Gln Asp Glu Gln Leu Phe Ile Asp Thr Gly Met
5485 35 40 45
5487 Trp Asp Ala Ala Leu Ala Lys Asp Lys Met Asp Ala Trp Leu Ser Ser
5488 50 55 60
5490 Ser Lys Ala Asn Gln Ile Glu Val Ile Ile Ala Asn Asn Asp Gly Met
5491 65 70 75 80
5493 Ala Met Gly Ala Leu Glu Ala Thr Lys Ala His Gly Lys Lys Leu Pro
5494 85 90 95
E--> 5496 Ile Phe Xaa Val Xaa Ala Leu Pro Glu Val Leu Gln Leu Ile Lys Lys
5497 100 105 110
5499 Gly Glu Ile Ala Gly Thr Val Leu Asn Asp Gly Val Asn Gln Gly Lys
5500 115 120 125
5502 Ala Val Val Gln Leu Ser Asn Asn Leu Ala Lys Gly Lys Pro Ala Thr
5503 130 135 140
5505 Glu Gly Thr Lys Trp Gln Leu Lys Arg Ser Cys Pro Thr Tyr Pro Leu
5506 145 150 155 160
5508 Cys Trp Cys Gly Cys Gly
5509 165
11512 <210> SEQ ID NO: 103
11513 <211> LENGTH: 1643
11514 <212> TYPE: PRT
11515 <213> ORGANISM: Pasteurella multocida
11517 <400> SEQUENCE: 103
11518 Met Asn Lys Asn Arg Tyr Lys Leu Ile Phe Ser Gln Val Lys Gly Cys
11519 1 5 10 15
11521 Leu Val Pro Val Ala Glu Cys Ile Asn Ser Ala Ile Ser Asn Gly Ser
11522 20 25 30
11524 Ser Asp Ser Thr Ser Thr Ser Glu Gln Val Glu Glu Glu Pro Phe Leu
11525 35 40 45
11527 Leu Glu Gln Tyr Ser Leu Ser Ser Val Ser Leu Leu Val Lys Ser Thr
11528 50 55 60
11530 Phe Asn Pro Val Ser Tyr Ala Met Gln Leu Thr Trp Lys Gln Leu Ser
11531 65 70 75 80
11533 Ile Leu Phe Leu Thr Val Ile Ser Val Pro Val Leu Ala Glu Gly Lys
11534 85 90 95
11536 Gly Asp Glu Arg Asn Gln Leu Thr Val Ile Asp Asn Ser Asp His Ile
11537 100 105 110
11539 Lys Leu Asp Ala Ser Asn Leu Ala Gly Asn Asp Lys Thr Lys Ile Tyr
11540 115 120 125
11542 Gln Ala Glu Asn Lys Val Leu Val Ile Asp Ile Ala Lys Pro Asn Gly
11543 130 135 140

```

item 9

item 9

P.13

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:54

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

```

11545 Lys Gly Ile Ser Asp Asn Arg Phe Glu Lys Phe Asn Ile Pro Asn Ser
11546 145 150 155 160
11548 Ala Val Phe Asn Asn Asn Gly Thr Glu Ala Gln Ala Arg Ser Thr Leu
11549 165 170 175
11551 Ile Gly Tyr Ile Pro Gln Asn Gln Asn Leu Arg Gly Gly Lys Glu Ala
11552 180 185 190
11554 Asp Val Ile Leu Asn Gln Val Thr Gly Pro Gln Glu Ser Lys Ile Val
11555 195 200 205
11557 Gly Ala Leu Glu Val Leu Gly Lys Lys Ala Asp Ile Val Ile Ala Asn
11558 210 215 220
11560 Gln Asn Gly Ile Thr Leu Asn Gly Val Arg Thr Ile Asn Ser Asp Arg
11561 225 230 235 240
11563 Phe Val Ala Thr Thr Ser Glu Leu Ile Asp Pro Asn Gln Met Met Leu
11564 245 250 255
11566 Lys Val Thr Lys Gly Asn Val Ile Ile Asp Ile Asp Gly Phe Ser Thr
11567 260 265 270
11569 Asp Gly Leu Lys Tyr Leu Asp Ile Ile Ala Lys Lys Ile Glu Gln Lys
11570 275 280 285
11572 Gln Ser Ile Thr Ser Gly Asp Asn Ser Glu Ala Lys Thr Asp Val Thr
11573 290 295 300
11575 Leu Ile Ala Gly Ser Ser Glu Tyr Asp Leu Ser Lys His Glu Leu Lys
11576 305 310 315 320
11578 Lys Thr Ser Gly Glu Asn Val Ser Asn Asp Val Ile Ala Ile Thr Gly
11579 325 330 335
11581 Ser Ser Thr Gly Ala Met His Gly Lys Asn Ile Lys Leu Ile Val Thr
11582 340 345 350
11584 Asp Lys Gly Ala Gly Val Lys His Asp Gly Ile Ile Leu Ser Glu Asn
11585 355 360 365
11587 Asp Ile Gln Ile Glu Met Asn Glu Gly Asp Leu Glu Leu Gly Asn Thr
11588 370 375 380
11590 Ile Gln Gln Thr Val Val Lys Lys Asp Arg Asn Ile Arg Ala Lys Lys
11591 385 390 395 400
11593 Lys Ile Glu Val Lys Asn Ala Asn Arg Val Phe Val Gly Ser Gln Thr
11594 405 410 415
11596 Lys Ser Asp Glu Ile Ser Leu Glu Ala Lys Gln Val Lys Ile Arg Lys
11597 420 425 430
11599 Asn Ala Glu Ile Arg Ser Thr Thr Gln Ala Lys Ile Val Ala Lys Gly
11600 435 440 445
11602 Ala Leu Ser Ile Glu Gln Asn Ala Lys Leu Val Ala Lys Lys Ile Asp
11603 450 455 460
11605 Val Ala Thr Glu Thr Leu Thr Asn Ala Gly Arg Ile Tyr Gly Arg Glu
11606 465 470 475 480
11608 Val Lys Leu Asp Thr Asn Asn Leu Ile Asn Asp Lys Glu Ile Tyr Ala
11609 485 490 495
11611 Glu Arg Lys Leu Ser Ile Leu Thr Lys Gly Lys Asp Leu Glu Ile Ile
11612 500 505 510
11614 Gln Asp Arg Tyr Leu Ser Pro Leu Met Arg Val Lys Ser Ser Val Arg
11615 515 520 525
11617 Phe Leu Gly Ser Pro Phe Phe Ser Ile Ser Pro Ser Met Leu Ala Ser

```

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:54

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

```

11618      530      535      540
11620 Leu Ser Ala Gln Phe Lys Pro Gly Phe Val Asn Lys Gly Leu Ile Glu
11621 545      550      555      560
11623 Ser Ala Gly Ser Ala Glu Leu Thr Phe Lys Glu Lys Thr Ser Phe Leu
11624      565      570      575
11626 Thr Glu Gly Asn Asn Phe Ile Arg Ala Lys Asp Ala Leu Thr Ile Asn
11627      580      585      590
11629 Ala Gln Asn Ile Glu Ile Asp Lys Asn Gln Asp Ile Gln Leu Gly Ala
11630      595      600      605
11632 Asn Ile Thr Leu Asn Val Glu Glu Asn Phe Val Asn Arg Ala Gly Thr
11633      610      615      620
11635 Leu Ala Thr Gly Lys Thr Leu Thr Ile Asn Thr Glu Ser Gly Ser Ile
11636 625      630      635      640
11638 Tyr Asn Leu Gly Gly Thr Leu Gly Ala Gly Lys Ser Leu Lys Leu Thr
11639      645      650      655
11641 Ala Lys Ser Thr Glu Glu Gly Met Gly Asn Ile Val Asn Gln Glu Asn
11642      660      665      670
11644 Gly Leu Phe His Thr Leu Gly Asn Met Met Leu Glu Ala Glu Arg Ser
11645      675      680      685
11647 Val Tyr Asn Ile Gly Asp Ile Tyr Ala Ser Lys Lys Leu Thr Val His
11648      690      695      700
11650 Thr His Asn Leu Ile Asn Asp Val Arg Leu Ser Gly Asn Val Ser Tyr
11651 705      710      715      720
11653 Lys Pro Ile Gly Ser Ser Arg Asp Tyr Asp Ile Ser Arg Val Ala Val
11654      725      730      735
11656 His Gly Trp His Asn Asn Val Tyr Lys Leu Asn Leu Asn Leu Gln Glu
11657      740      745      750
11659 Gln Asp Lys Thr Asp Ile Lys Val Val Lys Met Gly Ala Ile Arg Ser
11660      755      760      765
11662 Asp Gly Asp Phe Asp Phe Lys Gly Ile Lys Ala Thr Ser Ser Glu Ser
11663      770      775      780
11665 Lys Pro Gln Leu Ile Asn His Gly Leu Ile Asn Val Lys Gly Thr Phe
11666 785      790      795      800
11668 Asn Ala Glu Ala Asp Gln Val Val Asn Gln Met Lys Ala Phe Asn Gln
11669      805      810      815
11671 Asn Ala Leu Ala Ser Val Phe Lys Asn Pro Ala Lys Ile Thr Met Tyr
11672      820      825      830
11674 Tyr Gln Pro Leu Thr Arg Tyr Ile Trp Thr Pro Leu Ser Gly Asn Ala
11675      835      840      845
11677 Ser Arg Glu Phe Asn Asn Leu Glu Ser Phe Leu Asp Ala Leu Phe Gly
11678      850      855      860
11680 Ser Thr Thr Ile Leu Lys Ser Ser Phe Tyr Ser Thr Glu Asn Phe Ser
11681 865      870      875      880
11683 Ala Tyr Gln Leu Leu Ser His Ile Gln His Ser Pro Met Tyr Gln Lys
11684      885      890      895
11686 Ala Met Ala Gln Val Phe Gly Ala Glu Trp His Ser Lys Ser Tyr Asp
11687      900      905      910
11689 Glu Met Arg Asn Lys Trp Lys Ser Phe Lys Glu Asn Pro Thr Asp Phe
11690      915      920      925

```

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:54

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

```

11692 Ile Tyr Tyr Pro Ser Glu Lys Ala Lys Ile Leu Ala Gly Lys Leu Glu
11693      930      935      940
11695 Gly Lys Leu Thr Thr Leu Gln Asn Gly Glu Tyr Ala Glu Arg Gly Lys
11696 945      950      955      960
11698 Phe Asp Glu Ser Ile Gln Ile Gly Lys His Gln Leu Ser Leu Pro Ser
11699      965      970      975
11701 Val Glu Leu Lys Ala Glu Phe Ser Asp Lys Glu Arg Leu Glu Glu Asp
11702      980      985      990
11704 Gly Val Asp Leu Ser Ser Ile Ala Glu Leu Leu Glu Met Pro Asn Leu
11705      995      1000      1005
11707 Phe Ile Asp Asn Ser Ile Gln Leu Glu Lys Lys Lys Leu Ser Pro Ile
11708      1010      1015      1020
11710 Glu Asp Leu Asp Glu Glu Pro Arg Lys Asn Leu Asp Ile Glu Glu Ser
11711 1025      1030      1035      1040
11713 His Ser Asn Ser Ser Asp Asp Val Leu Ser Met Asn Asp Asp Glu Ser
11714      1045      1050      1055
11716 Asp Thr Asp Asp Ser Lys Trp Ser Met Gly Asn Asp Glu Lys Glu Met
11717      1060      1065      1070
11719 Pro Asp Asp Lys Leu Gly Ile Ser Arg Asp Asp Arg Gly Asn Lys Pro
11720      1075      1080      1085
11722 Pro Arg Thr Asp Pro Thr Val Asp Tyr Leu Asn Pro Asp Glu Phe Phe
11723      1090      1095      1100
11725 Glu Asn Gly Tyr Leu Leu Asn Glu Leu Leu Gln Glu Leu Gly Glu Glu
11726 1105      1110      1115      1120
11728 Pro Leu Leu Lys Glu Gly Glu Asp His Phe Lys Arg Ser Thr Asn Leu
11729      1125      1130      1135
11731 Val Arg Leu Gly Glu Arg Asp Arg Gln Asn Arg Glu Lys Arg Glu Lys
11732      1140      1145      1150
11734 Glu Gly Tyr Phe Asp Leu Pro Gly Thr Leu Asp Met Lys Leu Gln Glu
11735      1155      1160      1165
11737 Leu Phe Glu Lys Arg Lys Gln Lys His Glu Ala Glu Gln Lys Ala Arg
11738      1170      1175      1180
11740 Ile Glu Lys Ala Leu Leu Gln Lys Ser Glu Gln Gln Glu Lys Arg Val
11741 1185      1190      1195      1200
11743 Glu Glu Arg Lys Gln Glu Glu Lys Arg Gln Ala Gln Asp Lys Ile Ala
11744      1205      1210      1215
11746 Lys Gln Val Glu Ile Ala Lys Glu Met Gln Arg Val Glu Glu Ile Arg
11747      1220      1225      1230
11749 Gln Arg Glu Lys Gln Leu Ala Ile Gln Leu Gln Glu Glu Glu Lys Lys
11750      1235      1240      1245
11752 Gln Gln Glu Glu Lys His Leu Ser Glu Glu Lys Lys Gln Ala Glu Gln
11753      1250      1255      1260
11755 Lys Gln Lys Ala Glu Glu Lys Val Ala Gln Glu Arg Leu Asp Ile Glu
11756 1265      1270      1275      1280
11758 Gln Gln Lys Ala Tyr Glu Glu Met Ala Lys Arg Glu Ala Glu Ala Ser
11759      1285      1290      1295
11761 Lys Asn Val Leu Lys Ala Ile Asp Glu Glu Arg Pro Lys Val Glu
11762      1300      1305      1310
11764 Thr Asp Pro Leu Phe Arg Thr Lys Leu Lys Tyr Ile Asn Gln Asp Asp

```

RAW SEQUENCE LISTING

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:54

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

```

11765      1315      1320      1325
11767 Tyr Ala Gly Ala Asn Tyr Phe Phe Asn Lys Val Gly Leu Asn Thr Lys
11768      1330      1335      1340
11770 Gly His Gln Lys Val Asn Val Leu Gly Asp Asn Tyr Phe Asp His Gln
11771 1345      1350      1355      1360
11773 Val Ile Thr Arg Ser Ile Glu Lys Lys Val Asp Asn His Leu Asn Gln
11774      1365      1370      1375
11776 Lys Tyr Asn Leu Ser Asp Val Glu Leu Val Lys Gln Leu Met Asp Asn
11777      1380      1385      1390
11779 Ser Thr Thr Gln Ala Gln Glu Leu Asp Leu Lys Leu Gly Ala Ala Leu
11780      1395      1400      1405
11782 Thr Lys Glu Gln Gln Ala Asn Leu Thr Gln Asp Ile Val Trp Tyr Val
11783      1410      1415      1420
11785 Lys Thr Lys Val Lys Gly Lys Asp Val Phe Val Pro Lys Val Tyr Phe
11786 1425      1430      1435      1440
11788 Ala Ser Glu Thr Leu Val Glu Ala Gln Lys Leu Gln Gly Leu Gly Thr
11789      1445      1450      1455
11791 Gly Thr Ile Arg Val Gly Glu Ala Lys Ile Lys Ala Lys Asp Val Val
11792      1460      1465      1470
11794 Asn Thr Gly Thr Leu Ala Gly Arg Lys Leu Asn Val Glu Ala Ser Asn
11795      1475      1480      1485
11797 Lys Ile Lys Asn Gln Gly Ser Ile Leu Ser Thr Gln Glu Thr Arg Leu
11798      1490      1495      1500
11800 Val Gly Arg Lys Gly Ile Glu Asn Val Ser Arg Ser Phe Ala Asn Asp
11801 1505      1510      1515      1520
11803 Glu Leu Gly Val Thr Ala Gln Arg Ser Glu Ile Lys Thr Glu Gly His
11804      1525      1530      1535
11806 Leu His Leu Glu Thr Asp Lys Asp Ser Thr Ile Asp Val Gln Ala Ser
11807      1540      1545      1550
11809 Asp Ile Lys Ala Lys Thr Ser Phe Val Lys Thr Gly Asp Val Asn Leu
11810      1555      1560      1565
11812 Lys Asn Thr Tyr Asn Thr Lys His Ala Tyr Arg Glu Lys Phe Ser Pro
11813      1570      1575      1580
11815 Ser Ala Leu Gln Val Ala Glu Leu Asp Val Ala Gly Leu Lys Val Pro
11816 1585      1590      1595      1600
11818 Leu Leu Gly Val Ser Val Ser Ile Gln Phe Ile Gln Ser Ile Leu Val
11819      1605      1610      1615
E--> 11821 Arg Gln Leu Gln Glu Gly Ser Ile Phe Glu Val Gly His Leu His Xaa
11822      1620      1625      1630
11824 Ala Val Asp Arg Arg Cys Glu Pro Ser Gly Glu
11825      1635      1640

```

FYI →

Use of n and/or Xaa has been detected in the Sequence Listing.
 Review the Sequence Listing to insure a corresponding
 explanation is presented in the <220> to <223> fields of
 each sequence using n or Xaa.

VERIFICATION SUMMARY

DATE: 09/07/2001

PATENT APPLICATION: US/09/508,095

TIME: 14:23:56

Input Set : C:\Crf3\Datahold\09545199

Output Set: N:\CRF3\09072001\I508095.raw

L:2 M:270 C: Current Application Number differs, Replaced Current Application No
L:2 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:2 M:289 W: Identifier Missing or Out-Of-Order, <150> PRIOR APP NO
L:0 M:201 W: Mandatory field data missing, APPLICANT NAME
L:0 M:201 W: Mandatory field data missing, TITLE INVENTION
L:0 M:201 W: Mandatory field data missing, FILE REFERENCE
L:100 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:2151 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:16
M:332 Repeated in SeqNo=16
L:3766 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:3767 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:3770 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:3771 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:3774 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:3775 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:3882 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:28
M:340 Repeated in SeqNo=28
L:5261 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:5262 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:5273 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:5274 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:5289 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:5297 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:5345 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:36
M:340 Repeated in SeqNo=36
L:5385 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5386 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5401 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5402 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5433 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5435 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5461 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5463 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:5484 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:38
M:340 Repeated in SeqNo=38
L:5609 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39
L:6532 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47
L:9085 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72
L:10782 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:90
L:10782 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:90
L:10782 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90
L:10784 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:90
L:10784 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:90
L:10784 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90
L:11503 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102
L:11504 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102
L:11821 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:103